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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,259	08/19/2005	Robert Ashe	377.8116USU	8671

27623 7590 04/26/2006

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EXAMINER

FORD, JOHN K

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 04/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/511,259

Applicant(s)

ASHE ET AL.

Examiner

John K. Ford

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-30 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-19, drawn to a heat exchanger.

Group II, claim(s) 20-30, drawn to a method of heat exchange.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The process claims recite a host of different end-uses of the device in claims 21-30, all of which are mutually exclusive. According to the international search report of 11 August 2003, some of the original process claims (20-30) encompassed by current claim 20 have no novelty over at least EP '155 and USP 3,047,274. This is ample evidence that the patentability of the process claims necessarily will depend on the details of the special technical features that are not found in generic claim 20. Likewise the apparatus claims (encompassed by current claim 1), according to the international search report of 11 August 2003, some of the original apparatus claims (1-19) encompassed by current claim 1 have no novelty over at least EP '155 and USP 3,047,274. This is ample evidence that the patentability of the apparatus claims necessarily will depend on the details of the special technical features that are not found in generic claim 1.

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

FLOW PATH SPECIES:

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First flow path species wherein the material whose temperature is to be controlled flows in a single conduit (e.g. claim 5),

Second flow path species wherein the heat transfer fluid flows in a single conduit (e.g. claim 6),

#### HEAT EXCHANGER SPECIES:

First species of heat exchanger comprising plates (e.g. claim 11),

Second species of heat exchanger comprising a solid block (e.g. claim 12)

Third species of heat exchanger comprising sections with machined slots (e.g. claim 12),

#### ACTUATOR SPECIES:

First species of actuator comprising a translating piston (e.g. claim 13),

Second species of actuator comprising a rotating piston (e.g. claim 14),

Third species of actuator comprising nested pipes (e.g. claim 15),

Fourth species of actuator comprising multiple separate valves (e.g. claim 16),

Fifth species of actuator comprising valve(s) for variable area control (e.g. claim 17),

#### CONTROLLED SUBSTANCES

First species of controlled substance comprising water (e.g. claim 21),

Second species of controlled substance comprising food (e.g. claim 22),

Third species of controlled substance comprising organic synthesis reactions (e.g. claim 23),

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Fourth species of controlled substance comprising polymerization reactions (e.g. claim 24),

Fifth species of controlled substance comprising temperature sensitive materials (e.g. claim 25),

Sixth species of controlled substance comprising continuous reactions (e.g. claim 26),

Seventh species of controlled substance comprising road vehicle heat exchangers (e.g. claim 27),

Eighth species of controlled substance comprising ship heat exchangers (e.g. claim 28)

Ninth species of controlled substance comprising drilling platform heat exchangers (e.g. claim 27),

Tenth species of controlled substance comprising aircraft heat exchangers (e.g. claim 28),

Eleventh species of controlled substance comprising very small or micro scale heat exchangers.

Applicant is required, in reply to this action, to elect a single species (one species in each of the categories enumerated above: i.e. flow path, heat exchanger, actuator and controlled substance) to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is

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allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

The following claim(s) appear to be generic: claims 1 and 20.

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: as stated above, the generic claims (1 and 20) do not define patentable subject matter based on the documents cited against those claims in the European search report. Accordingly, the dependent claims, that claim mutually exclusive special technical features, are necessarily the focus in further examination of claims to see if any of them define patentable subject matter.

Any inquiry concerning this communication should be directed to John K. Ford at telephone number 571-272-4911.



**John K. Ford**  
**Primary Examiner**